

Revision of the Genus *Pandanus* Stickman, Part 7 New Species from Borneo, Papua, and the Solomon Islands

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THIS SEVENTH PART of the series contains descriptions of miscellaneous new species from islands in the tropical Pacific.

Pandanus Andersonii sp. nov. (sect. *Acrostigma*)

Figs. 33-34

NOM. VERN.: "surong irit."

DIAGNOSIS HOLOTYPE: Pedunculo ad 10 cm. longo 2.5 cm. diametro obtuse trigono ebracteato erecto, syncarpis 1-3 spicatis in inflorescentia erecta 15 cm. longa evidenta, syncarpis 11.5-14 cm. longis 13.5-14 cm. diametro late ellipsoideis vel subglobosis obtuse trigonatis cum drupis numerosissimis, drupis 35-40 mm. longis 6-7 mm. latis 5-6 mm. crassis fusiformibus 5-6-angulatis corpore 18-21 mm. longo oblongo-ellipsoideo pileo quam corporem latiore 13-17 mm. longo in stylo sensim diminuenti, parte principali brunnea ex squamis late deltoideis lucidis dense congregatis erectis ex axile perpendicularibus, drupis in fasciculis dehiscentibus, et pileis in laminis grandibus dehiscentibus, stylo 5-7 mm. longo subulato arcuato stigmatam distalem ferento, stigmatem 4-5 mm. longo sublineari in fissura, endocarpio in $\frac{1}{4}$ parte infera albo cartilagineo lateribus 0.2 mm. crassis, mesocarpio apicali cavernoso ellipsoideo 8-9 mm. longo, mesocarpio basali 5 mm. longo fibroso et carnoso.

DESCRIPTION OF ALL SPECIMENS EXAMINED: "Roots ramify below water table; rhizome at surface level." Stem 20-25 cm. long, 1.2 cm. in diameter, assurgent, forking and forming dense thickets; leaves 2.6-6.8 m. long, 2.6-2.8 cm. wide, coriaceous, ligulate, 3-nerved and plicate, M-shaped in cross section, the under side slightly paler, abruptly narrowed to the heavy subulate tip which 10 cm. down is 13 mm. wide, the base entire and amplexicaul, but beginning 9

cm. up the margins with stout serrations 2-2.5 mm. long, 5-13 mm. apart, pale; the midrib below beginning 7-8 cm. up with reflexed prickles 4-6 mm. long, 7-17 mm. apart, stout arcuate subulate, becoming brown; at midsection the margins with serrations 1-1.5 mm. long, 5-10 mm. apart, pale below, the tips brownish; the midrib unarmed; near the tip the margins and midrib below with serrations 0.5-1 mm. long, the marginal 2-3 mm. apart, those of the midrib 3-8 mm. apart; on the upper side the two secondary ribs with serrations about 0.5 mm. long, 9-30 mm. apart; pistillate inflorescence ascending, not concealed; peduncle up to 10 cm. long, and 2.5 cm. in diameter, obtusely trigonous, bractless, erect; heads solitary or 2-3 in a spike 15 cm. long; syncarps 11.5-14 cm. long, 13.5-14 cm. in diameter, broadly ellipsoid to subglobose, obtusely trigonous, bearing very numerous drupes (several hundred); drupes 35-40 mm. long, 6-7 mm. wide, 5-6 mm. thick, fusiform, 5-6-angled, the body 18-21 mm. long, oblong-ellipsoid; the pileus the widest part, lance conic, 13-17 mm. long, narrowing gradually into the style, the body appearing rough and brown, from the dense outgrowth of closely packed, brown, shining (perhaps viscid) broad triangular scales, erect from the surface and all perpendicular to the drupe axis; drupes shedding in bundles and the pileuses cohering, early shedding in great sheets; style 5-7 mm. long, subulate, arcuate, glabrous, bearing a distal stigma 4-5 mm. long, almost linear in an open crack on the curved style; endocarp in lower $\frac{1}{4}$, white, cartilaginous, the walls 0.2 mm. thick; apical mesocarp an empty cavern, 8-9 mm. long, ellipsoid; basal mesocarp 5 mm. long, fibrous and fleshy.

HOLOTYPE: Sarawak, Lawas District, Kayangeran Forest Reserve, in "Sempilor" (*Dacrydium Beccarii* var. *subelatum*) forest, 10 ft. alt., Nov. 1960, J. A. R. Anderson (fruit only) (SARF).

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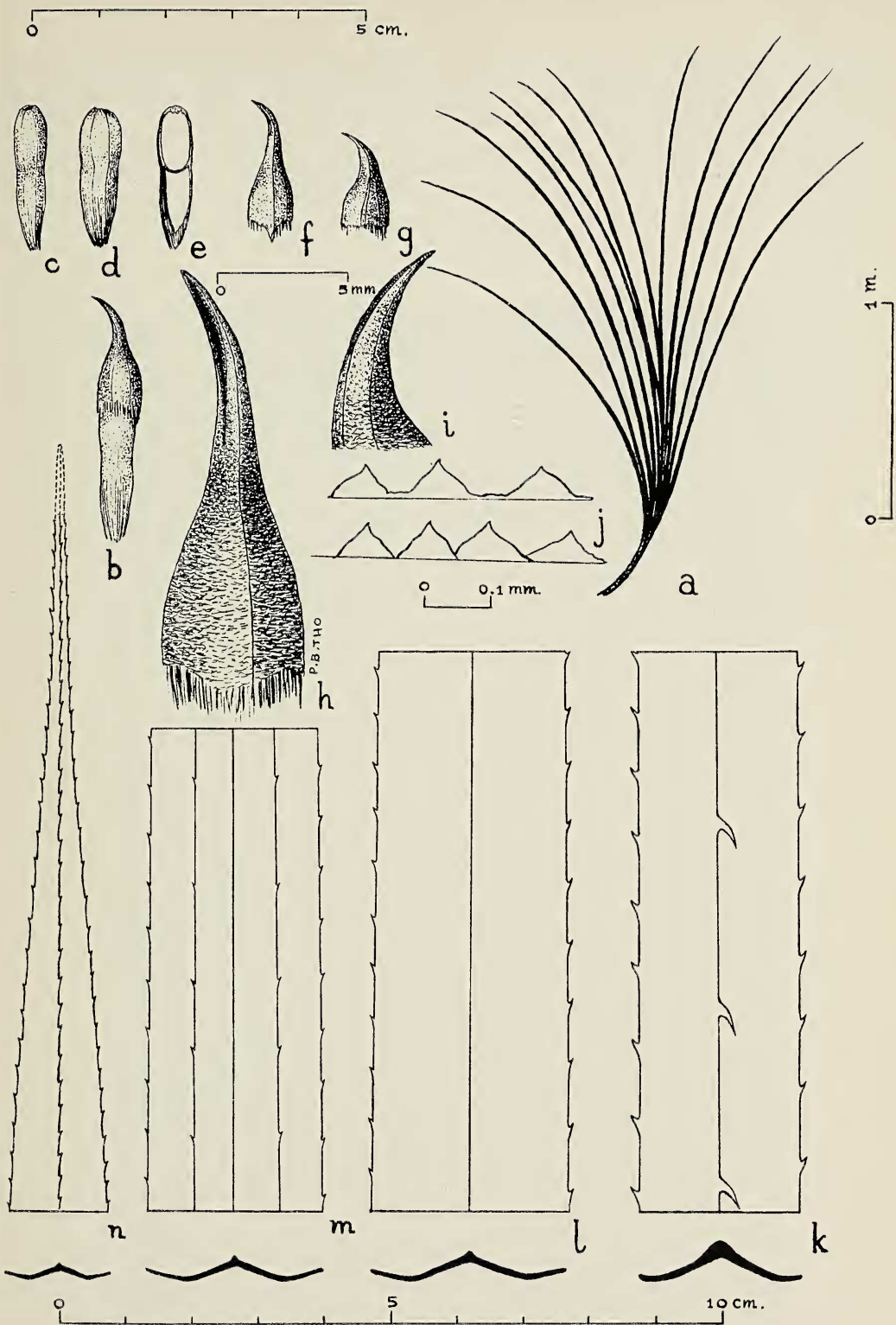


FIG. 33. *Pandanus Andersonii* St. John, from holotype. *a*, Habit, $\times 1/40$; *b*, drupe, lateral view, $\times 1$; *c*, *d*, drupes after shedding pileus, lateral view, $\times 1$; *e*, drupe, longitudinal median section, $\times 1$; *f*, *g*, pileus, lateral view, $\times 1$; *h*, pileus and stigma, lateral view, $\times 4$; *i*, style and stigma of basal drupe, lateral view, $\times 4$; *j*, scales of pileus, basal view, $\times 100$; *k*, base of leaf, lower side, $\times 1$; *l*, leaf middle, lower side, $\times 1$; *m*, leaf, slightly beyond the middle, upper side, $\times 1$; *n*, leaf apex, lower side, $\times 1$.

SPECIMENS EXAMINED: Sarawak, Loba Kabang Protected Forest, abundant, ground flora in "alan" (*Shorea albida*) type forest, found in wetter areas and associated with "bakong" (*Hanguana malayana*), May 16, 1954, J. A. R. Anderson S.2,815 (SARF).

DISCUSSION: *P. Andersonii* is a member of

the section *Acrostigma* and there one finds its closest relative, *P. brevifolius* Martelli of Borneo. This has the syncarp solitary, 5 cm. long, 4 cm. in diameter; drupes 15–16 mm. long, 3 mm. wide; pileus abruptly contracted to the style; and the endocarp in the lower $\frac{1}{3}$. On the other hand, *P. Andersonii* St. John has the syncarps



FIG. 34. *Pandanus Andersonii* St. John, in foreground, in peat swamp forest of *Shorea albida*, Baram River, Sarawak. (Photo by J. A. R. Anderson.)

1–3 in a spike and 11.5–14 cm. long, 13.5–14 cm. in diameter; drupes 35–40 mm. long, 6–7 mm. wide; pileus tapering into the style; and the endocarp in the lower $\frac{1}{4}$.

The new species is named in honor of its collector, Mr. J. A. R. Anderson, Forest Research Officer of the Sarawak government.

Pandanus fruticosus sp. nov. (sect. *Acrostigma*)

Figs. 35–36

DIAGNOSIS HOLOTYPE: Frutex 15.5 m. altus ramosus, ramulis foliosis 6–9 cm. diametro, cortice rubrescenti-brunneo lucido cum cicatricibus pallidis cinctis, foliis 51–58 cm. longis 8–10 mm. latis subcoriaceis ligulatis M-formatis longe diminuentibus in apice subulato 10 cm. ex apice 3.5 mm. lato, marginibus in basi integris sed ex 4 cm. marginibus cum dentibus validis subulatis 0.5–1.3 mm. longis 1–3 mm. distantibus nigris in 45° adscendentibus, midnervio exarmato, marginibus in sectio mediale cum serris nigris 0.5 mm. longis 1–2 mm. distantibus, midnervio infra cum serris nigris 2–6 mm. longis 2–6 mm. distantibus, circa apicem marginibus et midnervio infra cum serris acutis 0.4–0.5 mm. longis 0.5–1.5 mm. distantibus, inflorescentia foeminea solitaria terminale cum bracteis plurimis 16 mm. latis amplectentibus, syncarpio subsessile 3 cm. longo 2 cm. diametro ellipsoideo, drupis multis 9–10 mm. longis 2–2.5 mm. diametro fusiformis, corpore 4–5 mm. longo, pileo obliquiter conico 4 (–5) mm. longo ad stylum tenuato, stylo subulato cum linea stigmata proxima 2.5–3 mm. longa, endocarpio supramediatale lateribus 0.1 mm. crassis pallidis, semine 3.5 mm. longo 1.6 mm. diametro late elliptico, mesocarpio infero cavernoso.

DESCRIPTION OF HOLOTYPE: Shrub 15.5 m. tall, forking; leafy branchlets 6–9 cm. in diameter, the bark reddish brown, shining, ringed by pale leaf scars; leaves 51–58 cm. long, 8–10 mm. wide, subcoriaceous, ligulate, M-shaped in cross section, long tapering to a subulate apex which at 10 cm. back from the tip is 3.5 mm. wide, margins at the very base entire, but from about 4 cm. up the margins with stout subulate teeth, 0.5–1.3 mm. long, 1–3 mm. apart, wholly black, ascending at 45° , the midrib unarmed; at the midsection the margins black

serrate, the teeth 0.5 mm. long, 1–2 mm. apart, the midrib below appressed, subulate, black serrate, the teeth 2–6 mm. apart; near the apex the margins and midrib below sharply serrate, the teeth 0.4–0.5 mm. long, 0.5–1.5 mm. apart; pistillate inflorescence solitary, terminal, surrounded by several bracteal leaves 16 mm. wide around the spike, but otherwise like the normal foliage leaves; syncarp subsessile 3 cm. long, 2 cm. in diameter, ellipsoid, with numerous drupes; drupes 9–10 mm. long, 2–2.5 mm. in diameter, fusiform, the body 4–5 mm. long, the pileus oblique conic, 4 (–5) mm. long, tapering into the subulate style which is linear stigmatic for 2.5–3 mm. on the proximal side; endocarp from middle to apex of body, the wall 0.1 mm. thick, pale; seed 3.5 mm. long, 1.6 mm. in diameter, broadly ellipsoid; lower mesocarp cavernous.

HOLOTYPE: North Borneo, Keningau District, 76½ mi. on path from Tenom to Ranau (8½ mi. NE. of Tambunan), 2,100 ft. alt., Aug. 27, 1954, G. H. S. Wood & J. Wyatt-Smith A 4,430 (BRI).

DISCUSSION: The new species *P. fruticosus* is in the section *Acrostigma*. Its nearest relative is the Malayan species *P. aurantiacus* Ridl. which has the leaves 3.8 cm. wide; inflorescence of 5 heads; syncarp 6.2 cm. long, 2.5 cm. in diameter; drupes 18 mm. long; and the endocarp 12 mm. long. On the other hand, *P. fruticosus* has leaves 8–10 mm. wide; the syncarp solitary; drupes 9–10 mm. long; and the endocarp 3.7 mm. long.

The new epithet is the Latin adjective, *fruticosus*, shrubby, given with reference to the plant habit.

Pandanus ruber sp. nov. (sect. *Microstigma*)

Figs. 37–38

DIAGNOSIS HOLOTYPE: Arbor 3–5 m. alta ramosa, trunco cum aculeis adscendentibus armato, radicibus fulturosus paucis aculeatis, foliis 172 cm. longis 10.2 cm. latis coriaceis in sectio M-formatis ligulatis acutis in sectio 10 cm. ex apice 4 cm. latis in base integris sed ex puncto 9 cm. e base cum aculeis 1–1.6 mm. longis 2–7 mm. distantibus salientibus stramineis, midnervio inerme, in sectio mediale marginibus cum aculeis 1–1.5 mm. longis 3–6 mm. distanti-

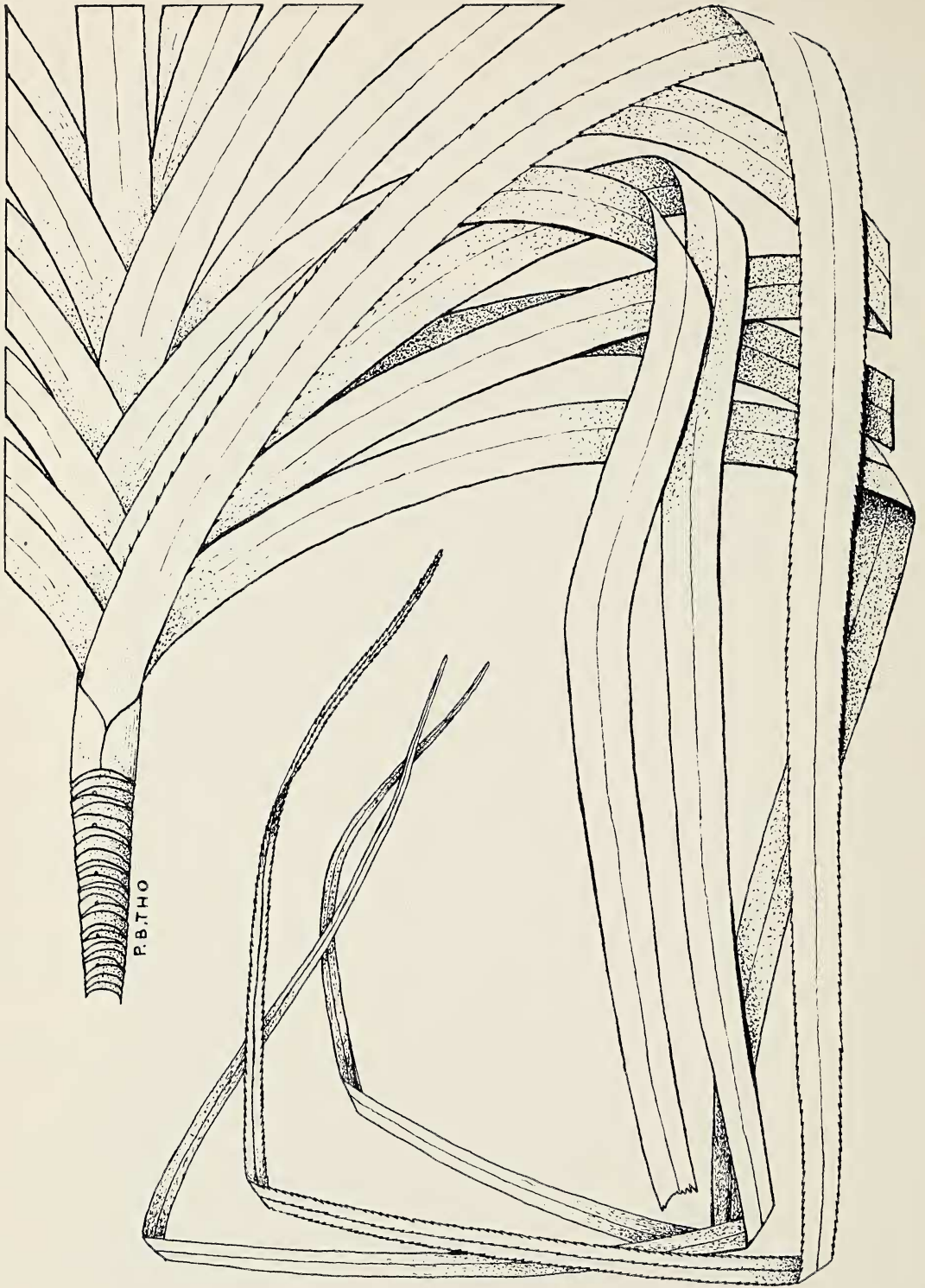


FIG. 35. *Pandanus fruticosus* St. John, from holotype. Habit, $\times 1$.

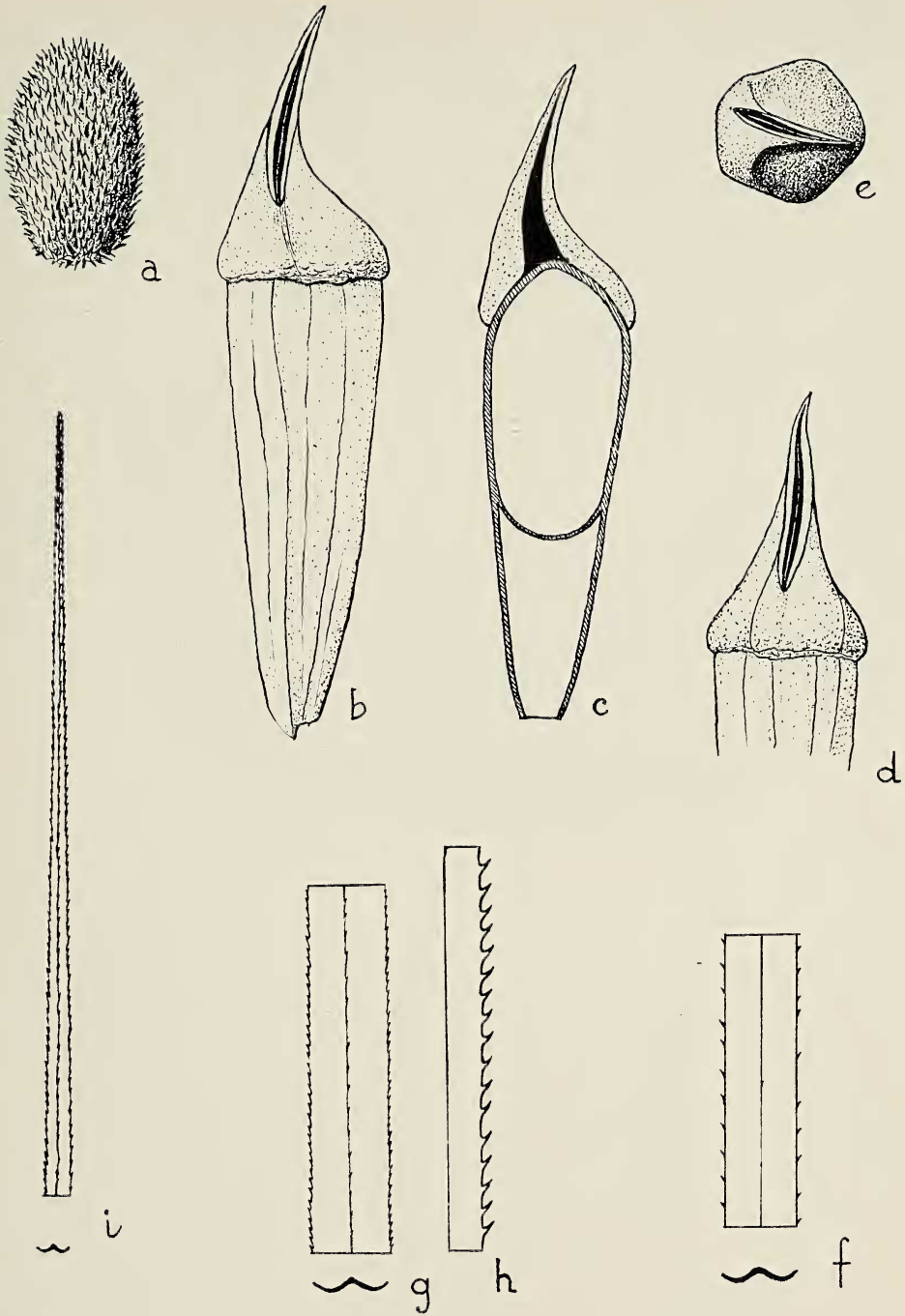


FIG. 36. *Pandanus fruticosus* St. John, from holotype. *a*, Syncarp, lateral view, $\times 1$; *b*, drupe, lateral view, $\times 10$; *c*, drupe, longitudinal median section, $\times 10$; *d*, pileus and stigma, lateral view, $\times 10$; *e*, pileus and stigma, apical view, $\times 10$; *f*, leaf base, lower side, $\times 1$; *g*, leaf middle, lower side, $\times 1$; *h*, leaf margin, middle, $\times 10$; *i*, leaf apex, lower side, $\times 1$.

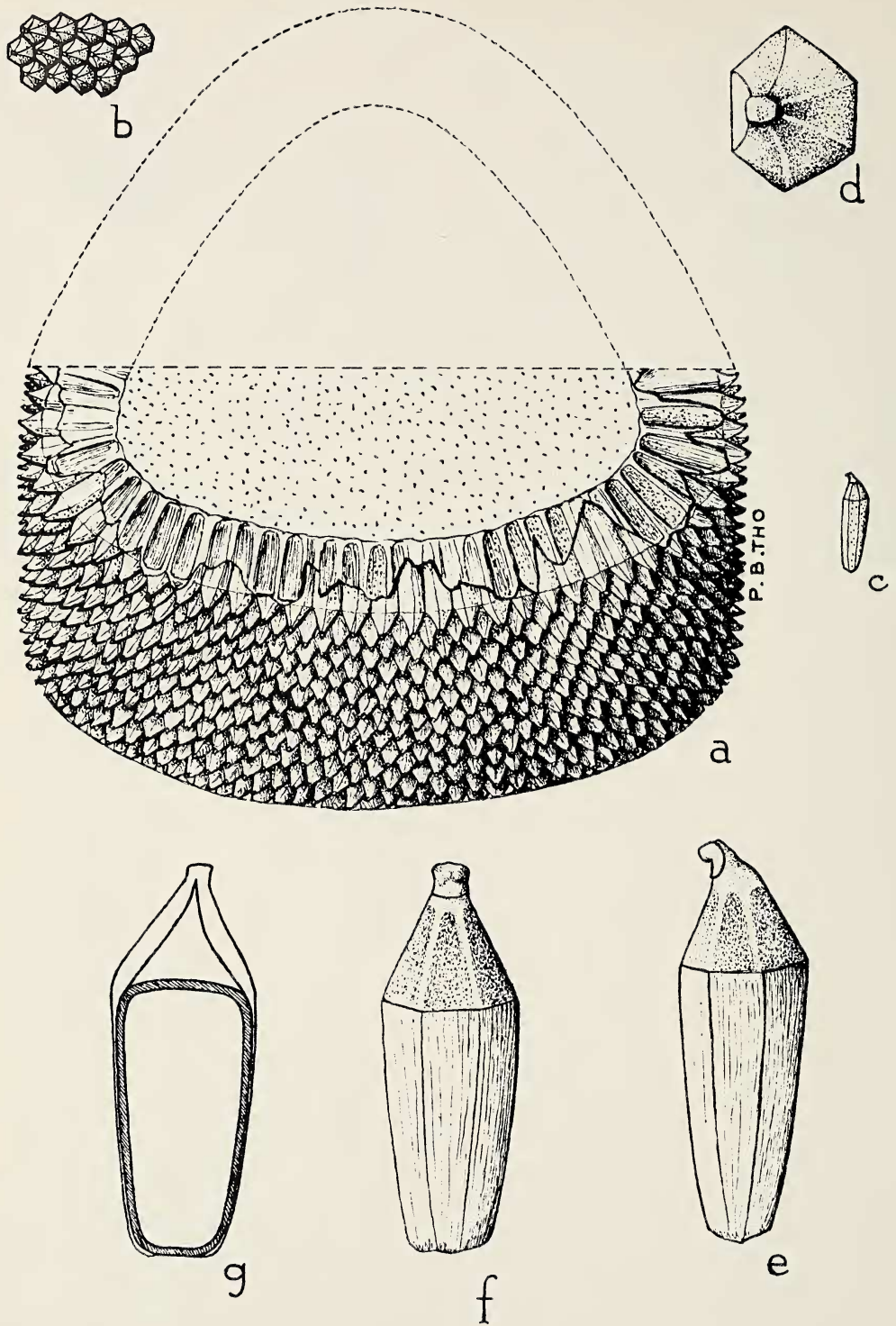


FIG. 37. *Pandanus ruber* St. John, from holotype. *a*, Syncarp, median section, $\times 1$; *b*, drupes, apical view, $\times 1$; *c*, drupe, lateral view, $\times 1$; *d*, drupe, apical view, $\times 4$; *e*, *f*, drupes, lateral view, $\times 4$; *g*, drupe, longitudinal median section, $\times 4$.

bus proxime adpresse-adscendentibus, midnervio cum aculeis 0.3–1 mm. longis 3–11 mm. distantibus valide aciculatis adpresse adscendentibus subbrunneis, proxime apice marginibus unicevel duplo-serratis serris 1.5–2.1 mm. longis 2–5 mm. distantibus stramineis, supra nervis secundariis cum aculeis paucis eis 0.8–1 mm. longis, infra nervo mediale saliente et cum aculeis simultantibus 1.5–2 mm. longis 3–10 mm. distantibus, syncarpiis solitariis plerumque 42 cm. longis 10.5 cm. diametro cylindricis sed subtriangulatis, receptaculo aurantiaco-rubro, drupis numerosissimis in sectio mediale 13–15 mm. longis 3–4.5 mm. latis 2.5–3 mm. crassis unicarpellatis obscure rubris 4–6-angulatis parte $\frac{1}{4}$ supera libera, pileo 3–4 mm. longo anguste pyramidale asymmetrico et arcuato corpore oblongo in base subcuneato, stigmatibus 0.8–1.5 mm. longis et latis suborbicularibus brunneis verticalibus proximalibus infra petaso terminale, endocarpio basale 9 mm. longo osseoso obscure brunneo lucido 0.4–0.5 mm. crasso, mesocarpio apicale caverno unico.

DIAGNOSIS OF HOLOTYPE: Tree, 3–5 m. tall, branched; trunk and branches armed with up-turned prickles; prop roots few, prickly; leaves 172 cm. long, 10.2 cm. wide, coriaceous, M-shaped in cross section, ligulate, acute, 4 cm. wide at 10 cm. from the tip, at the very base the margins entire, but from 9 cm. up prickly, the prickles 1–1.6 mm. long, 2–7 mm. apart, spreading, straw-colored, the nearby midrib unarmed; at the middle point the margins with prickles 1–1.5 mm. long, 3–6 mm. apart, closely appressed ascending, those of the nearby midrib 0.3–1 mm. long, 3–11 mm. apart, stout acicular appressed ascending, brownish near the tip the margin simply or doubly subulate-serrate, the teeth 1.5–2.1 mm. long, 2–5 mm. apart, straw-colored, above the ribs of the two secondary pleats with a few ascending prickles 0.8–1 mm. long, below the salient midrib with similar prickles 1.5–2 mm. long, 3–10 mm. apart; syncarps solitary, averaging 42 cm. long, 10.5 cm. in diameter, cylindric but somewhat 3-sided; receptacle, orange-red; with myriad drupes, those at midsection 13–15 mm. long, 3–4.5 mm. wide, 2.5–3 mm. thick, 1-celled, dark red, 4–6-angled, upper $\frac{1}{4}$ free, the pileus 3–4 mm. long, narrowly pyramidal, asymmetric and arcuate to the

apex, body almost oblong, but slightly cuneate below; stigmas 0.8–1.5 mm. long and wide, suborbicular, brown, vertical on proximal side of apex, below the apical cap; endocarp basal, 9 mm. long, bony, dark brown, shiny, the walls 0.4–0.5 mm. thick; apical mesocarp a single cavern.

HOLOTYPE: Papua, Central Division, Bella Vista, 1,450 m. alt., planted by the natives in gullies and ravines close to their gardens, Nov. 1933, *L. J. Brass* 5,463 (BRI); and isotype (A).

DISCUSSION: The closest relative is *P. Hollrungii* Warb. of Deutsch Neu-Guinea, now Australian New Guinea. It differs by having: the leaves 2.5 m. long, 5 cm. wide; syncarp 35 × 4–7 cm., sessile, spathe-surrounded; drupes 11–13 mm. long, 2.5–3 mm. wide, the apex semi-orbicular-pyramidal; stigmas apical, subhorizontal, 1.5 mm. wide; and the endocarp slightly submedian. *P. ruber* differs by having: the leaves 1.7 m. long, 10.2 cm. wide; syncarp 42 × 10.5 cm.; drupes 13–15 mm. long, 3–4 mm. wide, 3 mm. thick, the apex narrowly pyramidal, asymmetric and arcuate; stigmas 0.8–1.5 mm. wide, vertical on proximal side below overhanging apical cap; and the endocarp basal.

The collector recorded that, "the leaves of mature trees always much damaged by insects..." Also that the trees were cultivated. It is doubtless also wild in the forest. The several similar species with cylindric, red syncarps yield on boiling a fruit sauce important in the diet of the New Guinea natives.

This plant was identified as *P. conoideus* Lam. by Merrill and Perry (Journ. Arn. Arb. 20: 175, 1939). Lamarck's species is similar in its subterminal stigmas, but the drupes are 16 mm. long, the pileus is broader, and the endocarp is only submedia, and the leaves are narrower and with horrid spines. It is based on *P. ceramicus* Rumph (1743) from Amboina, Ceram, and the Indonesian islands.

The epithet, *ruber*, is the Latin adjective meaning red, here chosen because of the red color of the fruits.

Pandanus yuleensis sp. nov. (sect. *Pandanus*)

Figs. 39–40

DIAGNOSIS HOLOTYPI: Frutex ad 6.6 m. alta, cortice radicibus crassis adscendentibus ad 12

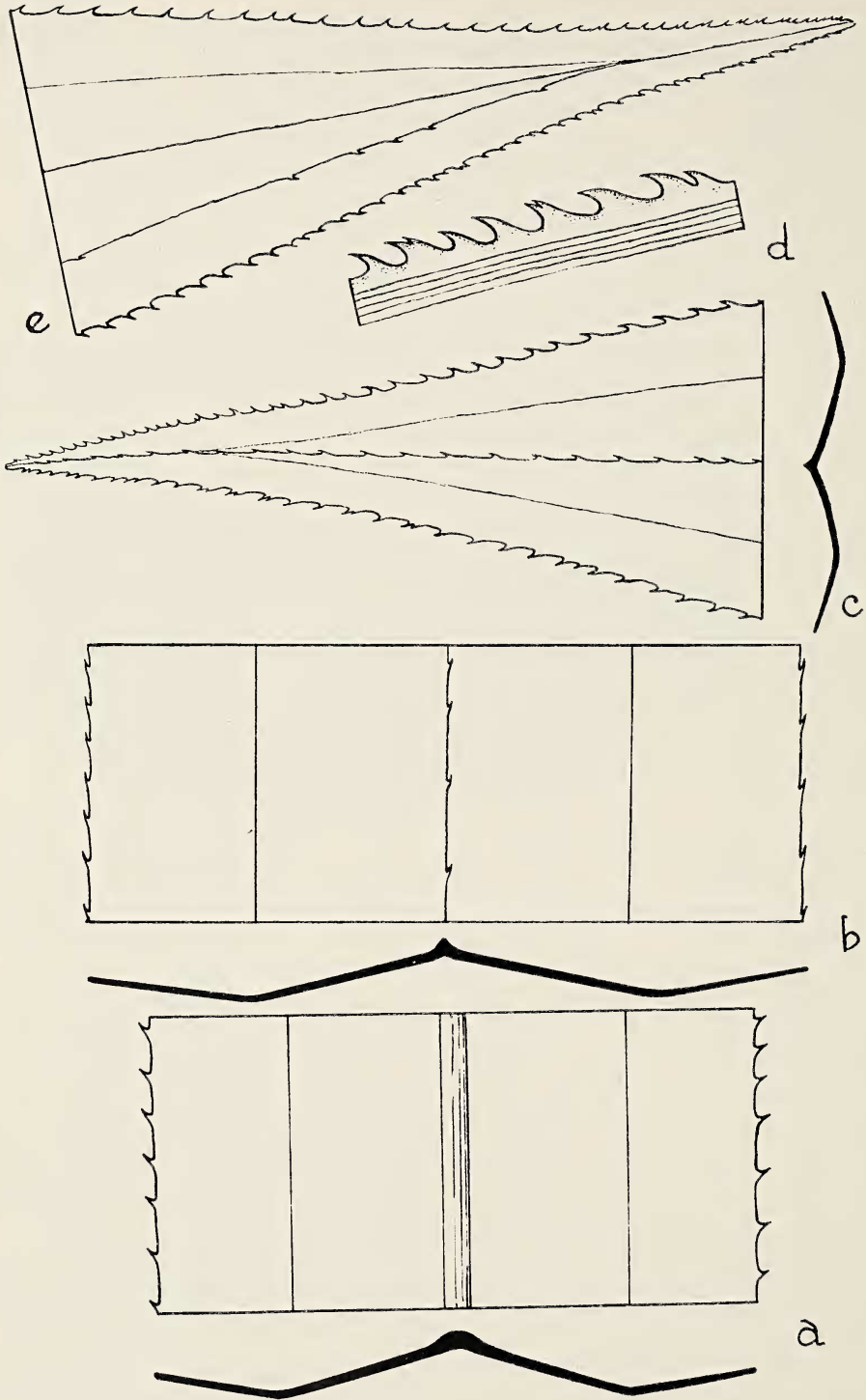


FIG. 38. *Pandanus ruber* St. John, from holotype. *a*, Leaf base, lower side, $\times 1$; *b*, leaf middle, lower side, $\times 1$; *c*, leaf apex, lower side, $\times 1$; *d*, leaf margin, near apex, $\times 3$; *e*, leaf apex, upper side, $\times 1$.

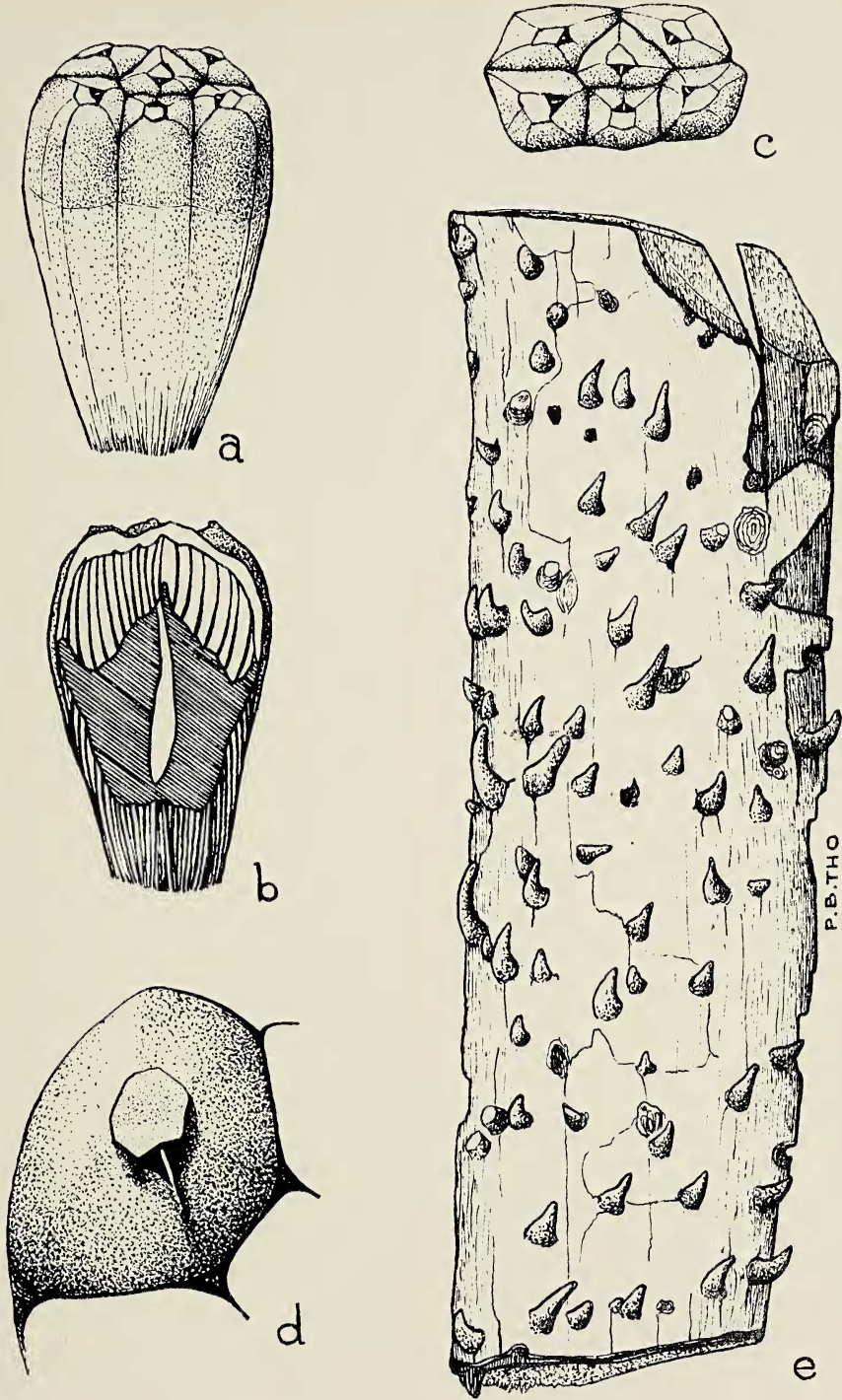


FIG. 39. *Pandanus yuleensis* St. John, from holotype. *a*, Phalange, lateral view, $\times 1$; *b*, phalange, longitudinal median view, $\times 1$; *c*, phalange, apical view, $\times 1$; *d*, carpel, apical view, $\times 3$; *e*, stem with ascending rootlets, lateral view, $\times 1$.

mm. longis 3–10 mm. distantibus obtectis, foliis 1.6 m, longis 5.3 cm. latis gladiformis vel ligulatis sed paulatim ex base in apice longo subulato diminuentibus coriaceis in sectio transverso late M-formatis griseo-viridibus infra apparente glaucis apice deltoideo et 10 cm. ex puncto 1 mm. lato in base marginibus integris sed ex puncto 16 cm. e base cum dentibus 1.5–2 mm. longis 3–12 mm. distantibus subulatis paene curvatis in base brunneis midnervio inerme, in medio in uno latere cum dentibus 1–1.5 mm. longis 3–15 mm. distantibus adpresse adscendentibus in puncto brunneis, latere altero inerme, midnervio infra cum dentibus 0.3 mm. longis 10–30 mm. distantibus paucis brunneis validis subulatis adpresse adscendentibus, ad apicem marginibus midnervioque infra cum serris paucis 0.2 mm. longis remotis brunneis, syncarpiis scilicet terminalibus solitariisque griseo-viridibus ad 12.5 cm. diametro, phalangibus 4.4–4.7 cm. longis 2.2–3 cm. latis 1.9–2 cm. crassis late cuneatis apice subconvexo vel truncato compressis parte $\frac{1}{3}$ supera libera lateribus 5–6-angulosis subcurvatis vel paene planis laevibus lucidis in sicco brunneis, suturis lateralibus nullis, sinibus apicalibus centralibus 3–3.5 mm. profundis, carpellis 4–6 apicibus subaequalibus conico-suborbicularibus eis marginalibus plerumque cum petaso truncato parvo et sub margine proximo eo stigma est, stigmatibus 1–2 mm. longis ovalibus vel obdeltoideis sillonatis centripetalibus, sutura proxima ex stigmate dimidia vel omnia distancia ad vadum extento, endocarpio mediale 25–27 mm. longo osseoso obscure brunneo lateribus 2.5–8 mm. crassis, seminibus 15–20 mm. longis 4 mm. diametro, mesocarpio apicale cavernoso cum fibris longitudinalibus et membranarum medullois, mesocarpio basale fibroso et carnoso.

DESCRIPTION OF ALL SPECIMENS EXAMINED: Tree up to 6.6 m. tall; bark gray, with abundant ascending, stout, adventitious roots up to 12 mm. in length but having no further development, placed 3–10 mm. apart; leaves 1.6–1.96 m. long, 5.3–6 cm. wide, sword-shaped or ligulate but tapering gradually from the base to the long subulate tip, coriaceous, in section broad M-shaped, gray-green, below apparently somewhat glaucous, the apex triangular and 10 cm. back only 1 mm. wide, at base the margins entire, but

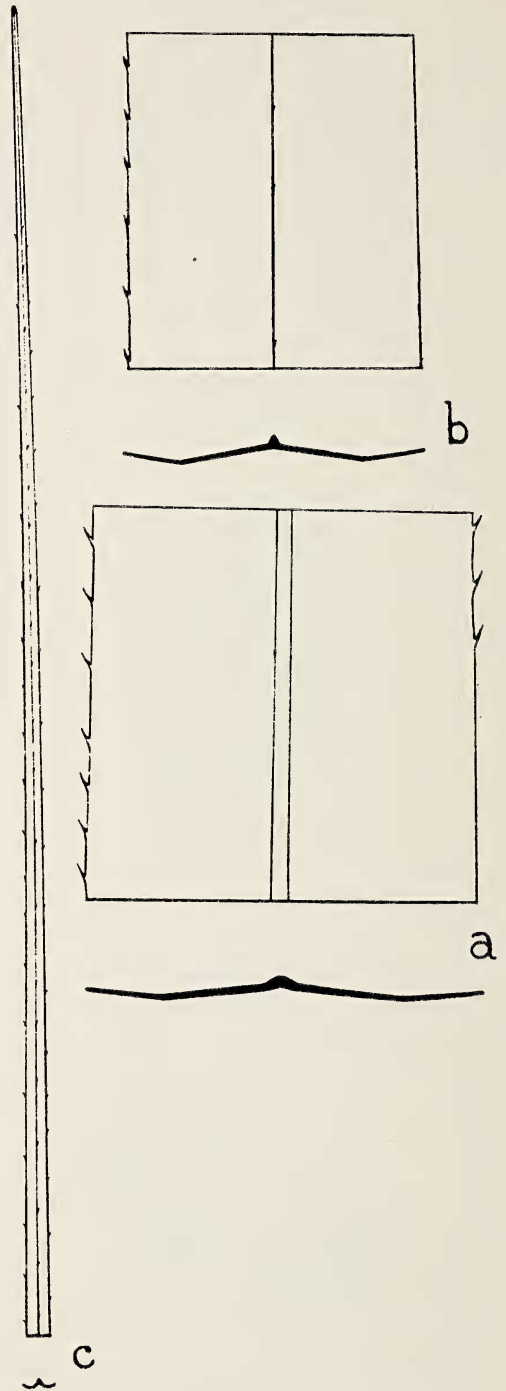


FIG. 40. *Pandanus yuleensis* St. John, from holotype. *a*, Leaf base, lower side, $\times 1$; *b*, leaf middle, lower side, $\times 1$; *c*, leaf apex, lower side, $\times 1$.

beginning 10–16 cm. up, with teeth 1.5–2 mm. long, 3–12 mm. apart, subulate, gently curved, brown based, the midrib unarmed; at the middle with teeth on one side 1–1.5 mm. long, 3–15 mm. apart, brown tipped, subulate, appressed ascending, but the other margin unarmed, the adjacent midrib below with a few teeth 0.3 mm. long, 10–30 mm. apart, brown, stout subulate, appressed ascending; near the apex the margins and midrib below with a few, remote, brown serrations 0.2 mm. long; syncarps probably terminal and solitary, "gray green, up to 12.5 cm. in diameter," phalanges 4.4–4.7 cm. long, 2.2–3 cm. wide, 1.9–2 cm. thick, broad cuneate, the apex subconvex or truncate, compressed, upper $\frac{1}{3}$ free, the sides 5–6-angled, gently curving or nearly plane, smooth, shining, when dried brown, lateral carpel sutures none, central apical sinuses 3–3.5 mm. deep; carpels 4–6, the apices subequal, conic-semiorbicular, the marginal ones usually with a small truncate cap in the proximal lee of which is the inclined stigma, stigmas 1–2 mm. long, oval to obdeltoid, creased, centripetal, below it the proximal crease on the carpel apex running from half way to all the way to the bottom; endocarp median, 25–27 mm. long, bony, dark brown, the lateral walls 2.5–8 mm. thick; seeds 15–20 mm. long, 4 mm. in diameter; apical mesocarp cavernous, traversed by longitudinal fibers and with delicate medullary membranes; basal mesocarp fibrous and fleshy.

Papua: Yule Island, Jan. 16, 1955, *J. S. Womersley & N. W. Simmonds* 5,099 (BRI).

SPECIMENS EXAMINED: Papua, Yule I., July/Aug., 1918, *C. T. White* 770 (BRI), consisting of one leaf only.

DISCUSSION: The most similar kind is *P. odoratissimus* L. f. var. *novo-caledonicus* (Martelli) St. John, which has the phalanges 5.5 cm. long, the upper half free; carpels 7–9, the outer 2–3-times the larger; apical central sinuses 2–3.5 mm. deep; stigmas apical, horizontal; and the endocarp $\frac{1}{3}$ the length of the phalange. On the contrary, *P. yuleensis* has the phalanges 4.4–4.7 cm. long, the upper third free; carpels 4–6, subequal; apical central sinuses 3–3.5 mm. deep; stigmas steeply oblique, placed below the truncate apex; and the endocarp more than half the length of the phalange.

The new specific epithet is an adjective

made from the name of the type locality, Yule, by adding the Latin place suffix, *-ensis*.

Pandanus magnicavernosus sp. nov. (sect. *Mammillarisia*)

Figs. 41–42

DIAGNOSIS HOLOTYPEI: Arbor 8 m. alta erecta ramosa cum radicibus fulturosis, foliis 1.8–1.9 m. longis 9.5–10 cm. latis pallide viridibus mollioribus subcoriaceis subplanis in base midnervioque luteo-brunneis midnervio et nervis binis secundariis fortibus sed dentis innoxis apice acuto base paene dilatata et cum marginibus membranaceis per 25 cm. inermibus, marginibus ultra cum serris fortibus 1.5–2 mm. longis 3–10 mm. distantibus stramineis sed apicibus brunneis, midnervio inerme, in sectio mediale marginibus cum serris 0.5 mm. longis 2–10 mm. distantibus subulatis valde adpressis, midnervio infra cum aculeis simulantibus subulatis sed fortioribus et paene brevioribus, nervis secundariis inermibus, ad apicem marginibus cum serris subulatis 0.5–0.9 mm. longis 1–2 mm. distantibus pallidis adscendente adpressis, nervis secundariis supra scabris cum serris minutis irregularibus adscendentibus, midnervio infra cum aculeis 0.3–1 mm. longis subulatis adscendentibus aggregatis, pedunculis 90 cm. longis gracilibus triangularibus, syncarpio solitario penduloso 24 cm. diametro globoso glauco, phalangibus 2–3 (rare 1)-carpellatis numerosis 7.5–8.5 cm. longis 17–35 mm. latis 14–21 mm. crassis cuneiformis 5–7-angulosis carnosus parte supera $\frac{1}{6}$ libera apice depresso conico plurianguloso cum 1–3 extremitatibus, sinibus apicalibus centralibus 1–2 mm. profundis, stigmatibus 1.5–2 mm. longis cordatis apicalibus sulcatis quando binis centripetalibus quando tribus eo centrali ad laterem dirigit, lateribus phalangiorum planis, endocarpio in tertia infera 24–30 mm. longo osseoso pallide brunneo lateribus 3–4 mm. crassis, seminibus 10–12 mm. longis 3–4 mm. diametro ellipsoideis, mesocarpio supero cavernam unical dimidiam quam longam quam syncarpium formante sed sectio breve cum fibris et membranis medullosis, mesocarpio infero fibroso et carnosus.

DIAGNOSIS OF HOLOTYPE: "Tree, 8 m. tall, erect, branched near top; trunk supported on

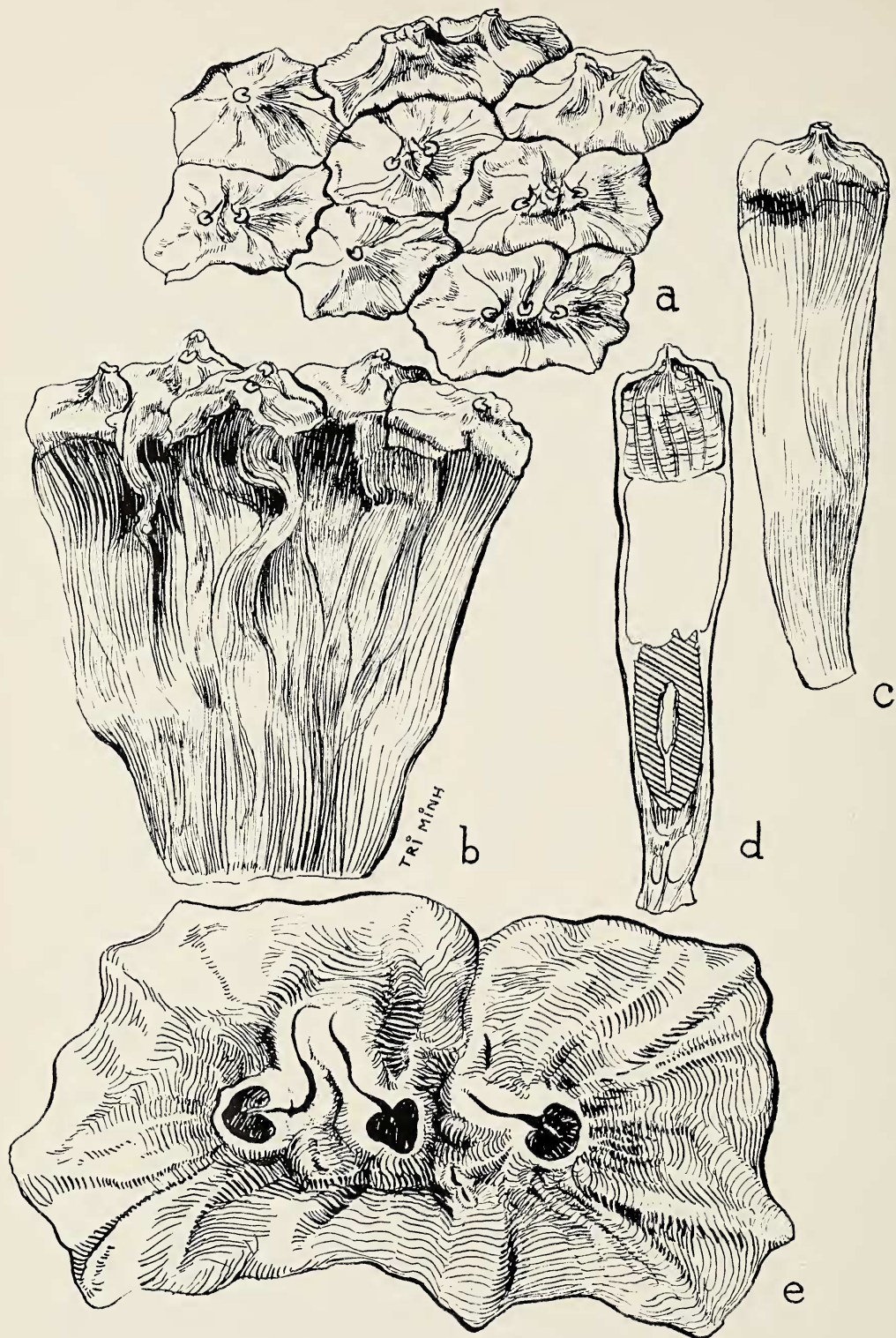


FIG. 41. *Pandanus magnicavernosus* St. John, from holotype. *a*, Phalanges, apical view, $\times 1$; *b*, phalanges, lateral view, $\times 1$; *c*, phalange, lateral view, $\times 1$; *d*, phalange, longitudinal median section, $\times 1$; *e*, phalange and stigmas, apical view, $\times 4$.

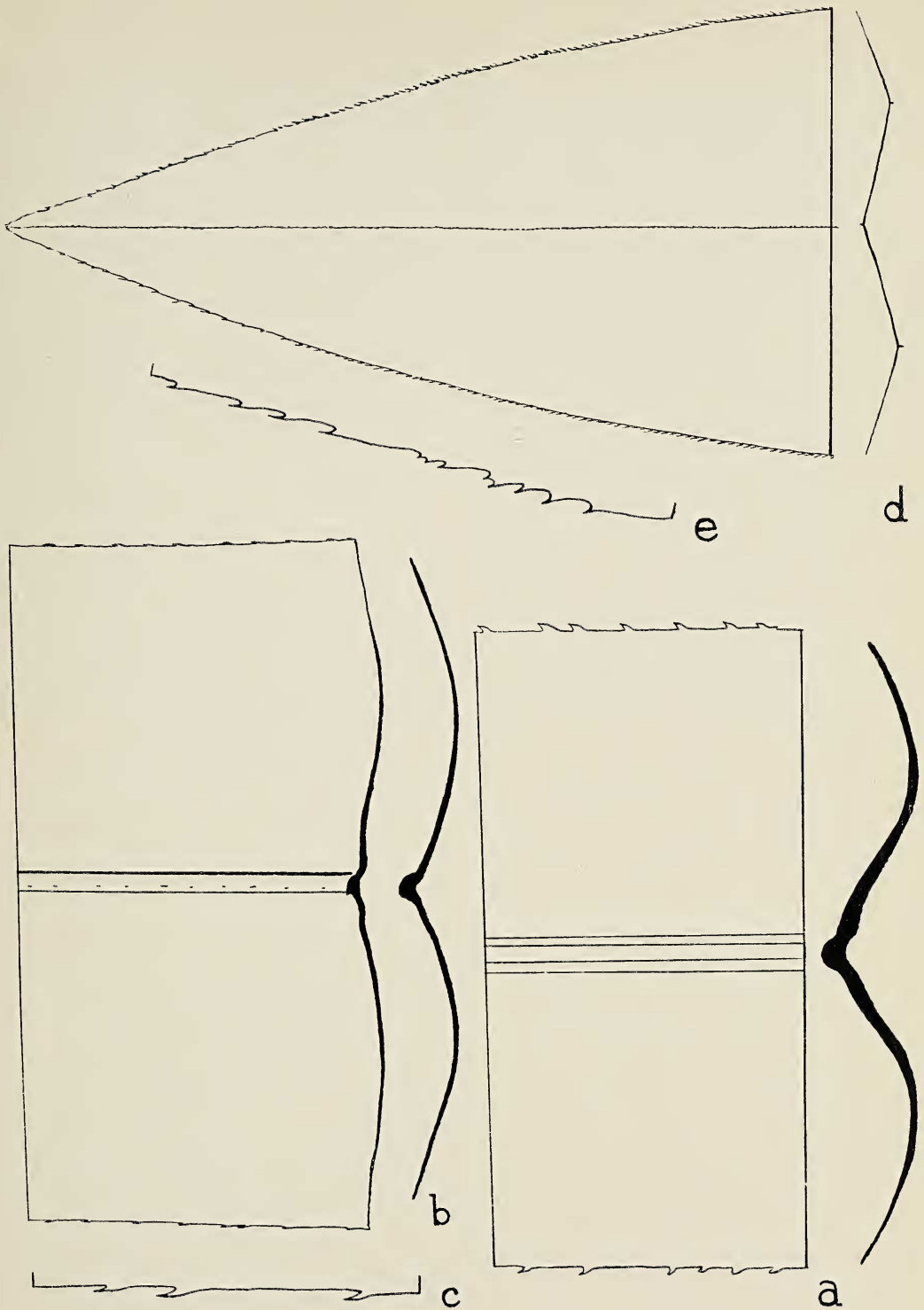


FIG. 42. *Pandanus magnicavernosus* St. John, from holotype. *a*, Leaf base, lower side, $\times 1$; *b*, leaf middle, lower side, $\times 1$; *c*, leaf margin at middle, $\times 4$; *d*, leaf apex, lower side, $\times 1$; *e*, leaf margin near apex, $\times 4$.

stilt roots; leaves 1.8–1.9 m. long, 9.5–10 cm. wide, pale green, glaucous beneath, midrib and basal part of leaf yellow brown, soft coriaceous, nearly flat, the midrib and two secondary ribs strong, the teeth inoffensive, the apex abruptly acute, the base slightly dilated and with a membranous unarmed margin for 25 cm., beyond that the margins with stout serrations 1.5–2 mm. long, 3–10 mm. apart, stramineous but brown tipped, the adjacent midrib unarmed; the margins at midsection with the teeth 0.5 mm. long, 2–10 mm. apart, subulate but closely appressed, the midrib below with similar but stouter and slightly shorter subulate prickles, the secondaries unarmed; near the tip the margins with subulate prickles 0.5–0.9 mm. long, 1–2 mm. apart, ascending-appressed, pale, the secondaries above scabrous with minute, irregular, ascending serrations, below the midrib crowded with ascending subulate prickles 0.3–1 mm. long; fruit on slender 3-angled peduncle 90 cm. long; syncarp solitary, pendulous, 24 cm. in diameter, globose, glaucous; phalanges 2–3 (rarely 1)-celled, numerous, 7.5–8.5 cm. long, 17–35 mm. wide, 14–21 mm. thick, wedge-

shaped, 5–7-angled, fleshy, upper 1/6 free, the apex depressed conic, with 1–3 tips, several angled, apical central sinuses 1–2 mm. deep and the crease between adjacent phalanges narrow, 1 mm. deep; stigmas 1.5–2 mm. long, cordate, apical, creased, if two then centripetal, if three then the central one facing laterally, phalange sides plane; endocarp in lower third, 24–30 mm. long, bony, pale brown, the lateral walls 3–4 mm. thick; seeds 10–12 mm. long, 3–4 mm. in diameter, ellipsoid; upper mesocarp one huge cavern occupying upper half of phalange except a short apical part with longitudinal fibers and transverse medullary membranes; lower mesocarp fibrous and fleshy.

HOLOTYPUS: Solomon Islands, San Cristoval I., Star Harbour, rain forest on coastal hills, one tree seen, Oct. 28, 1932, *L. J. Brass 3,120* (BRI).

DISCUSSION: This is a striking tree, with ample leaves and huge, conspicuous fruits. It fits into the section *Mammillarisia*, but at present has no known close relatives.

The specific epithet is formed from the Latin, *magnus*, large; *cavernosus*, cavernous, in allusion to the cavernous upper mesocarp.